

AGREEMENT

BETWEEN

NORTHEAST ALTERNATIVE VEHICLE CONSORTIUM, INC.  
("CONSORTIUM")  
129 PORTLAND STREET  
5TH FLOOR  
BOSTON, MA 02114

AND

THE ADVANCED RESEARCH PROJECTS AGENCY  
3701 NORTH FAIRFAX DRIVE  
ARLINGTON, VA 22203-1714

CONCERNING

RESEARCH INTO ELECTRIC VEHICLE TECHNOLOGY AND STUDYING THE MILITARY AND  
COMMERCIAL SYSTEMS WHICH CAN BE BASED ON THESE DEVICES

Agreement No. : MDA972-94-2-0005

ARPA Order No.: A578B

Total Amount of the Agreement: \$11,452,000

Total Estimated Government Funding of the Agreement: \$4,100,000

Funds Allotted: \$4,100,000

Authority: 10 U.S.C. 2371

Line of Appropriation:

AA 9730400 1320 A578 P3L10 2525 DPAC 3 5191 S49447 \$4,100,000

This Agreement is entered into between the United States of America, hereinafter called the "Government," represented by The Advanced Research Projects Agency "ARPA," and the Northeast Alternative Vehicle Consortium pursuant to and under U.S. Federal law.

NORTHEAST ALTERNATIVE VEHICLE  
CONSORTIUM, INC.

Deborah E. Gray  
(Signature)

Program Administrator  
(Title)

Nov 9, 1993  
(Date)

FOR THE UNITED STATES OF AMERICA  
THE ADVANCED RESEARCH PROJECTS AGENCY

George J. Johnson  
(Signature)

Director, ARPA  
(Title)

Nov 9, 1993  
(Date)

95-F-0667  
# 755

## TABLE OF CONTENTS

<b>ARTICLES</b>		<b>PAGE</b>
ARTICLE I	Scope of the Agreement	2
ARTICLE II	Term	3
ARTICLE III	Management of the Project	3
ARTICLE IV	Agreement Administration	5
ARTICLE V	Obligation and Payment	5
ARTICLE VI	Disputes	7
ARTICLE VII	Patent Rights	8
ARTICLE VIII	Data Rights	11
ARTICLE IX	Foreign Access to Technology	13
ARTICLE X	Officials Not to Benefit	14
ARTICLE XI	Civil Rights Act	14
ARTICLE XII	Order of Precedence	14
ARTICLE XIII	Execution	14

## ATTACHMENTS

ATTACHMENT 1	Statement of Work
ATTACHMENT 2	Report Requirements
ATTACHMENT 3	Schedule of Payments and Payable Milestones
ATTACHMENT 4	Funding Schedule
ATTACHMENT 5	List of Government and Consortium Representatives

## **ARTICLE I: SCOPE OF THE AGREEMENT**

### **A. Background**

1. This Agreement is an Other Transaction entered into under the authority of 10 U.S.C. 2371 for coordinated research into Electric and Hybrid Vehicle Technology. This research and development effort will expedite the diversification of defense dependent industries in the Northeast. Hybrid electric drive systems enable military systems with greater deployability, significant improvements in mobility while providing the electric power demanded by advanced sensors, emerging weapons, and power-intensive survivability subsystems. This will significantly improve survivability and lethality in future strategically-deployable vehicles. Hybrid electric drive component technology applies to both military (combat, tactical, and non-deployable) and commercial electric and hybrid vehicles. This Agreement will also ensure on-going development of electric and hybrid vehicles in the Northeast region. This Program will design and test selected electric and hybrid propulsion technologies and composite vehicles. A wide variety of battery types and propulsion systems will be tested in diverse cold weather geographical settings throughout the Northeast. The hybrid vehicles will contain both AC induction motors and compressed natural gas (CNG) engines. A new composite vehicle will be designed of lightweight material to better integrate and obtain optimal performance from the new propulsion technology. In addition, the propulsion systems will be installed and tested in existing vehicles, including a flywheel developed under this program. In the long run, the proposed propulsion systems will reduce pollution and provide a technological edge for American manufacturers.

### **B. Definitions**

1. "Consortium" shall mean NAVC, INC.
2. "Parties" shall mean NAVC, INC. and the Government who execute this Agreement.
3. "Participants" shall mean any organization or individual that enters into an agreement with this Consortium.

### **C. Scope**

1. The Consortium shall perform a coordinated research and development program designed to develop electric-hybrid vehicle technology. The research shall be carried out in accordance with the Statement of Work incorporated in this Agreement as Attachment 1. The Consortium shall submit or otherwise provide all documentation required by Attachment 2, Report Requirements.

2. The Consortium shall be paid for each Payable Milestone accomplished in accordance with the Schedule of Payments and Payable Milestones set forth in Attachment 3 and the procedures of Article V. Both the Schedule of Payments and the Funding Schedule set forth in Attachments 3 and 4 respectively may be revised or updated in accordance with Article III.

3. The Government and the Consortium estimate that the Statement of Work of this Agreement can only be accomplished with the Consortium aggregate resource contribution of \$7,352,000 from the effective date of this Agreement through twenty-four (24) months thereafter. The Consortium intends and, by entering into this Agreement, undertakes to cause to be provided these funds. Consortium contributions will be provided as detailed in the Funding Schedule set forth in Attachment 4. If either ARPA or the Consortium is unable to provide its respective total contribution, the other party may reduce its project funding by a proportional amount.

### **D. Goals/Objectives**

1. The goal of this agreement is to pursue research and development into technology that addresses military missions, functions, and usefulness. It will also improve local concentration of sources of energy security; increase commercial application of existing military technology in alternative vehicles; and improve air quality through reduction of conventional vehicle pollution in the Northeast.

2. The objectives of this Agreement are (1) to demonstrate a variety of electric and hybrid vehicles for military use at Hanscom AFB; (2) to test alternatively-powered buses, light-duty trucks, and passenger vehicles, and their components in the northeast states in civilian applications; (3) to sponsor nearerterm research in advanced technologies relating to alternative vehicles, including power storage and control technologies and lightweight materials technologies; and (4) to promote awareness, understanding, and communications regarding alternative vehicles.

3. The Government will have continuous involvement with the Consortium during the term of this Agreement. The Government will have access to research results and certain rights in data and patents pursuant to Articles VII and VIII. ARPA and the Consortium are bound to each other by a duty of good faith and best research effort in achieving the goals of the Consortium. This Agreement reflects the collaborative document identified as "Articles of Collaboration for Northeast Alternative Vehicle Consortium," which document binds Consortium participants.

4. This Agreement is an "other transaction" pursuant to 10 U.S.C. 2371. The Parties agree that the principal purpose of this Agreement is for the Government to support and stimulate the Consortium to provide its best efforts in advanced research and technology development and not for the acquisition of property or services for the direct benefit or use of the Government. The Federal Acquisition Regulation (FAR) and Department of Defense FAR Supplement (DFARS) apply only as specifically referenced herein. This Agreement is not a procurement contract or grant agreement for purposes of FAR Subpart 31.205-18.

## ARTICLE II: TERM

### A. The Term of this Agreement

The Program commences upon the date of the last signature hereon and continues for twenty-four (24) months. If all funds are expended prior to the twenty-four (24)-month duration, the Parties have no obligation to continue performance and may elect to cease development at that point. Provisions of this Agreement, which, by their express terms or by necessary implication, apply for periods of time other than specified herein, shall be given effect, notwithstanding this Article.

### B. Termination Provisions

Subject to a reasonable determination that the project will not produce beneficial results commensurate with the expenditure of resources, either Party may terminate this Agreement by written notice to the other Party, provided that such written notice is preceded by consultation between the Parties. In the event of a termination of the Agreement, the Government shall have paid-up Government purpose license rights to CATEGORY C data (as defined in Article VIII of this Agreement) developed under this Agreement. The Government and the Consortium, acting through its Consortium Management Committee, will negotiate in good faith an equitable reimbursement for work performed toward the accomplishment of Payable Milestones at the time of Government termination. Failure of the Parties to agree to an equitable adjustment will be resolved pursuant to Article VI. The Government has no obligation to reimburse the Consortium if the Consortium acting through its CMC decides to terminate.

### C. Extending the Term

The Parties may extend by mutual written agreement the term of this Agreement if funding availability and research opportunities reasonably warrant. Any extension shall be formalized through modification of the Agreement by the Agreement Administrator and the Consortium Administrator.

## **ARTICLE III: MANAGEMENT OF THE PROJECT**

### **A. Consortium Incorporators**

Consortium Incorporators, as set forth in the Articles of Incorporation of the Consortium, are:

NEW ENGLAND GOVERNORS' CONFERENCE, INC. (NEGC)  
NORTHEAST STATES FOR COORDINATED AIR USE MANAGEMENT (NESCAUM)

### **B. Consortium Management Committee (CMC)**

1. The CMC for this Agreement shall be comprised of voting representatives as follows: NEGC Executive Director, NESCAUM Executive Director, NAVC Executive Director, ARPA Program Manager, and Program Manager or Liaison NAVC. In accordance with the Consortium Articles of Collaboration, the CMC may bind the Consortium. However, the following CMC decisions under this Agreement are subject to ARPA approval:

- (a) Changes to the Articles of Collaboration if such changes substantially alter the relationship of the Parties;
- (b) Changes to, or elimination of, any ARPA funding allocation to any Consortium Participant as technically and/or financially justified;
- (c) Technical and/or funding revisions to the Agreement; and
- (d) Admission of additional or replacement Consortium Participants.

2. The CMC is responsible for establishing a schedule of regular meetings, to be held on a quarterly basis. The CMC shall notify all Consortium Participants and the ARPA Program Manager of the established meeting schedule and, in the event of changes to this schedule, shall notify all Consortium Participants and the ARPA Program Manager thirty (30) calendar days prior to the next scheduled meeting.

3. A quorum is required of the CMC at quarterly meetings. All technical and management decisions for this Agreement shall be made by majority vote of the CMC. The ARPA Program Manager will be a voting member of the CMC.

### **C. Management and Program Structure**

1. Technical and program management of the coordinated research program established under this Agreement shall be accomplished through the management structures and processes detailed in this Article.

(a) Subject to the terms and conditions of the Articles of Collaboration of the Consortium, the CMC shall be responsible for the overall management of the Agreement including technical, programmatic, reporting, financial and administrative matters.

(b) The ARPA Program Manager shall participate in all meetings of the CMC under this Agreement. Other Government personnel as deemed appropriate by the ARPA Program Manager may also participate in these meetings.

(c) Annual Program Plans, as described below in Article III, Section D, shall be submitted to the ARPA Program Manager.

2. The ARPA Program Manager shall be responsible for the review and verification of the Payable Milestones, and shall have continuous interaction to cause effective collaboration between ARPA and the Consortium.

#### **D. Program Management Planning Process**

The program management and planning process under this Agreement shall be subject to quarterly and annual reviews with inputs and review from the CMC and the ARPA Program Manager.

1. Initial Program Plan: The Consortium will follow the initial program plan that is contained in the Statement of Work (Attachment 1), and the Schedule of Payments and Payable Milestones (Attachment 3).

#### **2. Overall Program Plan Annual Review**

(a) The CMC, with ARPA Program Manager participation and review, will prepare an overall Annual Program Plan in the first quarter of each Agreement year. (For this purpose, each consecutive twelve (12) month period from (and including) the month of execution of this Agreement during which this Agreement shall remain in effect shall be considered an "Agreement Year.") The Annual Program Plan will be presented and reviewed at an annual site review concurrent with the appropriate quarterly meeting of the CMC which will be attended by the CMC, the ARPA Program Manager, Senior ARPA management or other ARPA program managers and personnel as appropriate. The CMC, with ARPA participation and review, will prepare a final Annual Program Plan.

(b) The Annual Program Plan provides a detailed schedule of research activities, commits the Consortium to use its best efforts to meet specific performance objectives, includes forecasted expenditures and describes the Payable Milestones. The Annual Program Plan will consolidate all prior adjustments in the research schedule, including revisions/modifications to payable milestones. Recommendations for changes, revisions or modifications to the Agreement which result from the Annual Review shall be made in accordance with the provisions of Article III, Section E.

#### **E. Modifications**

1. As a result of quarterly meetings, annual reviews, or at any time during the term of the Agreement, research progress or results may indicate that a change in the Statement of Work and/or the Payable Milestones, would be beneficial to program objectives. Recommendations for modifications, including justifications to support any changes to the Statement of Work and/or the Payable Milestones, will be documented in a letter and submitted by the CMC to the ARPA Program Manager with a copy to the ARPA Agreement Administrator. This documentation letter will detail the technical, chronological, and financial impact of the proposed modification to the research program. The CMC shall approve any Agreement modification. The Government is not obligated to pay for additional or revised Payable Milestones until the Payable Milestones Schedule (Attachment 3) is formally revised by the ARPA Agreement Administrator and made part of this Agreement.

2. The ARPA Program Manager shall be responsible for the review and verification of any recommendations to revise or otherwise modify the Agreement Statement of Work, Schedule of Payments or Payable Milestones, or other proposed changes to the terms and conditions of this Agreement.

3. For minor or administrative Agreement modifications (e.g. changes in the paying office or appropriation data, changes to Government or Consortium personnel identified in the Agreement, etc.) no signature is required by the Consortium.

### **ARTICLE IV. AGREEMENT ADMINISTRATION**

Administrative and contractual matters under this Agreement shall be referred to the following representatives of the parties:

ARPA: Angela M. Coonce, Agreement Administrator, (703) 696-2382

CONSORTIUM: Frederick R. Levy, Agreement Administrator, (617) 225-2822

Technical matters under this Agreement shall be referred to the following representatives:

ARPA: Major Richard Cope, Program Manager, (703) 696-2228

CONSORTIUM: Ms. Sheila Lynch, Program Manager (617) 367-8540  
Mr. Stephen Leahy, Program Liaison, (617) 423-6900

Each party may change its representatives named in this Article by written notification to the other party.

## ARTICLE V: OBLIGATION AND PAYMENT

### A. Obligation

1. The Government's liability to make payments to the Consortium is limited to only those funds obligated under this Agreement or by amendment to the Agreement. ARPA may obligate funds to the Agreement incrementally.

2. If modification becomes necessary in performance of this Agreement, pursuant to Article III, paragraph D, the ARPA Agreement Administrator and Consortium Administrator shall execute a revised Schedule of Payable Milestones consistent with the then current Program Plan.

### B. Payments

1. In addition to any other financial reports provided or required, the CMC shall notify the ARPA Agreement Administrator immediately if any contribution from a Consortium Participant is not made as required.

2. Prior to the submission of invoices to ARPA by the Consortium Administrator, the Consortium shall have and maintain an established accounting system which complies with Generally Accepted Accounting Principles, and with the requirements of this Agreement, and shall ensure that appropriate arrangements have been made for receiving, distributing and accounting for Federal funds. The Parties recognize that as a conduit, the Consortium does not incur nor does it allocate any indirect costs of its own to the Consortium Participant cost directly incurred pursuant to this Agreement. Consistent with this, an acceptable accounting system will be one in which all cash receipts and disbursements are controlled and documented properly.

3. The CMC shall document the accomplishments of each Payable Milestone by submitting or otherwise providing the Payable Milestones Report required by Attachment 2, Part D. The Consortium shall submit an original and five (5) copies of all invoices to the Agreement Administrator for payment approval. After written verification of the accomplishment of the Payable Milestone by the ARPA Program Manager, and approval by the Agreement Administrator, the invoices will be forwarded to the payment office within thirty (30) calendar days of receipt of the invoices at ARPA. Payments will be made by AFDW/FW, Attn: Commercial Services, 170 Luke Avenue, Suite 280, Bolling Air Force Base, Washington, DC 20332-5113 within thirty (30) calendar days of ARPA's transmittal. Subject to change only through written Agreement modification, payment shall be made to the address of the Consortium Administrator set forth below.

4. Address of Payee: NAVC, Inc.  
129 Portland Street  
Boston, MA 02114

5. Payments shall be made no more frequently than quarterly in the amounts set forth in the Attachment No. 3 (B) "Detailed Schedule of Payable Milestones," provided the ARPA Program Manager has verified the accomplishment of the Payable Milestones. It is recognized that the quarterly accounting of current expenditures reported in the "Quarterly Business Status Report" submitted in accordance with Attachment No. 2 is not necessarily intended or required to match the Payable Milestones until submission of the Final Report; however, payable milestones shall be revised during the course of the program to reflect current and revised projected expenditures.

6. **Limitation of Funds:** In no case shall the Government's financial liability exceed the amount obligated under this Agreement.

7. **Financial Records and Reports:** The Consortium shall maintain adequate records to account for Federal funds received under this Agreement; and shall maintain adequate records to account for Consortium Participant funding provided under this Agreement. Upon completion or termination of this Agreement, whichever occurs earlier, the Consortium Administrator shall furnish to the Agreement Administrator a copy of the final report required by Attachment 2, Part E. The Consortium's relevant financial records are subject to examination or audit on behalf of ARPA by the Government for a period not to exceed three (3) years after expiration of the term of this Agreement. The Agreement Administrator or designee shall have direct access to sufficient records and information of the Consortium, to ensure full accountability for all funding under this Agreement. Such audit, examination, or access shall be performed during business hours on business days upon prior written notice and shall be subject to the security requirements of the audited party.

## ARTICLE VI: DISPUTES

### A. General

Parties shall communicate with one another in good faith and in a timely and cooperative manner when raising issues under this Article.

### B. Dispute Resolution Procedures

1. Any disagreement, claim or dispute between ARPA and the Consortium concerning questions of fact or law arising from or in connection with this Agreement, and, whether or not involving an alleged breach of this Agreement, may be raised only under this Article.

2. Whenever disputes, disagreements, or misunderstandings arise, the Parties shall attempt to resolve the issue(s) involved by discussion and mutual agreement as soon as practicable. In no event shall a dispute, disagreement or misunderstanding which arose more than three (3) months prior to the notification made under subparagraph B.3 of this article constitute the basis for relief under this article unless the Director of ARPA in the interests of justice waives this requirement.

3. Failing resolution by mutual agreement, the aggrieved Party shall document the dispute, disagreement, or misunderstanding by notifying the other Party (through the ARPA Agreement Administrator or Consortium Administrator, as the case may be) in writing of the relevant facts, identify unresolved issues, and specify the clarification or remedy sought. Within five (5) working days after providing notice to the other Party, the aggrieved Party may, in writing, request a joint decision by the ARPA Deputy Director for Management and Representative of the CMC of the Consortium ("Consortium Representative"). The other Party shall submit a written position on the matter(s) in dispute within thirty (30) calendar days after being notified that a decision has been requested. The Deputy Director for Management and the Consortium Representative shall conduct a review of the matter(s) in dispute and render a decision in writing within thirty (30) calendar days of receipt of such written position. Any such joint decision is final and binding unless a Party shall within thirty (30) calendar days request further review as provided in this Article.

4. Upon written request to the Director of ARPA, made within thirty (30) calendar days or upon unavailability of a joint decision under subparagraph B.3 above, the dispute shall be further reviewed. The Director of ARPA may elect to conduct this review personally or through a designee or jointly with a representative of the other Party who is a senior official of the Party. Following the review, the Director of ARPA or designee will resolve the issue(s) and notify the Parties in writing. Such resolution is not subject to further administrative review and, to the extent permitted by law, shall be final and binding.

### C. Limitation of Damages

Claims for damages of any nature whatsoever pursued under this Agreement shall be limited to direct damages only up to the aggregate amount of ARPA funding disbursed as of the time the dispute arises. No claims for consequential, punitive, special and incidental damages, claims for lost profits, or other indirect damages shall be allowed. ARPA agrees that there is no joint and several liability within the Consortium. The Consortium disclaims any liability for consequential, indirect, or special damages, except when such damages are caused by willful misconduct of the Consortium Managerial personnel. In no event shall the liability of a Consortium Participant or any other entity performing research activities under this Agreement exceed the funding it has received up to the time of incurring such liability.

## ARTICLE VII: PATENT RIGHTS

### A. Definitions

1. "Invention" means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code.

2. "Made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

3. "Practical application" means to manufacture, in the case of a composition of product; to practice, in the case of a process or method, or to operate, in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is capable of being utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

4. "Subject invention" means any invention of a Consortium Participant conceived or first actually reduced to practice in the performance of work under this Agreement.

### B. Allocation of Principal Rights

Unless the Consortium shall have notified ARPA (in accordance with subparagraph C.2 below) that the Consortium does not intend to retain title, the Consortium shall retain the entire right, title, and interest throughout the world to each subject invention consistent with the provisions of the Articles of Collaboration, this Article, and 35 U.S.C. 203. With respect to any subject invention in which the Consortium retains title, ARPA shall have a non-exclusive, nontransferable, irrevocable, paid-up license to practice or have practiced on behalf of the United States the subject invention throughout the world. Notwithstanding the above, the Consortium may elect as defined in its Articles of Collaboration to provide full or partial rights that it has retained to Consortium Participants or other parties.

### C. Invention Disclosure, Election of Title, and Filing of Patent Application

1. The Consortium shall disclose each subject invention to ARPA within four (4) months after the inventor discloses it in writing to his company personnel responsible for patent matters. The disclosure to ARPA shall be in the form of a written report and shall identify the Agreement under which the invention was made and the identity of the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological, or electrical characteristics of the invention. The disclosure shall also identify any publication, sale, or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure.

2. If the Consortium determines that it does not intend to retain title to any such invention, the Consortium shall notify ARPA, in writing, within eight (8) months of disclosure to ARPA. However, in any case where publication, sale, or public use has initiated the one (1)-year statutory period wherein valid patent protection

can still be obtained in the United States, the period for such notice may be shortened by ARPA to a date that is no more than sixty (60) calendar days prior to the end of the statutory period.

3. The Consortium shall file its initial patent application on a subject invention to which it elects to retain title within one (1) year after election of title or, if earlier, prior to the end of the statutory period wherein valid patent protection can be obtained in the United States after a publication, or sale, or public use. The Consortium may elect to file patent applications in additional countries (including the European Patent Office and the Patent Cooperation Treaty) within either ten (10) months of the corresponding initial patent application or six (6) months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications, where such filing has been prohibited by a Secrecy Order.

4. Requests for extension of the time for disclosure election, and filing under Article VII, paragraph C, may, at the discretion of ARPA, and after considering the position of the Consortium, be granted.

#### **D. Conditions When the Government May Obtain Title**

Upon ARPA's written request, the Consortium shall convey title to any subject invention to ARPA under any of the following conditions:

1. If the Consortium fails to disclose or elects not to retain title to the subject invention within the times specified in paragraph C of this Article; provided, that ARPA may only request title within sixty (60) calendar days after learning of the failure of the Consortium to disclose or elect within the specified times.

2. In those countries in which the Consortium fails to file patent applications within the times specified in paragraph C of this Article; provided, that if the Consortium has filed a patent application in a country after the times specified in paragraph C of this Article, but prior to its receipt of the written request by ARPA, the Consortium shall continue to retain title in that country; or

3. In any country in which the Consortium decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in reexamination or opposition proceedings on, a patent on a subject invention.

#### **E. Minimum Rights to the Consortium and Protection of the Consortium's Right to File**

1. The Consortium shall retain a non-exclusive, royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the Consortium fails to disclose the invention within the times specified in paragraph C of this Article. The Consortium license extends to the domestic (including Canada) subsidiaries and affiliates, if any, of the Consortium Participants within the corporate structure of which the Consortium Participant is a party and includes the right to grant licenses of the same scope to the extent that the Consortium was legally obligated to do so at the time the Agreement was awarded. The license is transferable only within the approval of ARPA, except when transferred to the successor of that part of the business to which the invention pertains. ARPA approval for license transfer shall not be unreasonably withheld.

2. The Consortium domestic license may be revoked or modified by ARPA to the extent necessary to achieve expeditious practical application of subject invention pursuant to an application for an exclusive license submitted consistent with appropriate provisions at 37 CFR Part 404, provided that such revocation or modification shall not take place less than five (5) years after the end of the term of the Agreement. This license shall not be revoked in that field of use or the geographical areas in which the Consortium has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of ARPA to the extent the Consortium, its licensees, or the subsidiaries or affiliates have failed to achieve practical application in that foreign country.

3. Before revocation or modification of the license, ARPA shall furnish the Consortium a written notice of its intention to revoke or modify the license, and the Consortium shall be allowed thirty (30) calendar days (or such other time as may be authorized for good cause shown) after the notice to show cause why the license should not be revoked or modified.

**F. Action to Protect the Government's Interest**

1. The Consortium agrees to execute or to have executed and promptly deliver to ARPA all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the Consortium elects to retain title, and (ii) convey title to ARPA when requested under paragraph D of this Article and to enable the Government to obtain patent protection throughout the world in that subject invention.

2. The Consortium agrees to require, by written agreement, that employees of the Participants of the Consortium working on the Consortium, other than clerical and nontechnical employees, agree to disclose promptly in writing, to personnel identified as responsible for the administration of patent matters and in a format acceptable to the Consortium, each subject invention made under this Agreement in order that the Consortium can comply with the disclosure provisions of paragraph C of this Article. The Consortium shall instruct employees, through employee agreements or other suitable educational programs, on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

3. The Consortium shall notify ARPA of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceedings on a patent, in any country, not less than thirty (30) calendar days before the expiration of the response period required by the relevant patent office.

4. The Consortium shall include, within the specification of any United States patent application and any patent issuing thereon covering a subject invention, the following statement: "This invention was made with Government support under Agreement No. MDA972-94-2-0005 awarded by ARPA. The Government has certain rights in the invention."

**G. Lower Tier Agreements**

1. The Consortium shall include this Article, suitably modified, to identify the Participants, in all subcontracts or lower tier agreements, regardless of tier, for experimental, developmental, or research work.

2. In the case of a lower tier agreement with a vendor, at any tier, ARPA, the vendor, and the Consortium agree that the mutual obligations of the parties created by this Article flow down to the vendor and constitute an agreement between the vendor and ARPA with respect to the matters covered by this Article.

**H. Reporting on Utilization of Subject Inventions**

The Consortium agrees to submit, during the term of the Agreement, periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Consortium or licensees or assignees of the inventor. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Consortium subcontractor(s), and such other data and information as the agency may reasonably specify. The Consortium also agrees to provide additional reports as may be requested by ARPA in connection with any march-in proceedings undertaken by ARPA in accordance with paragraph J of this Article. Consistent with 35 U.S.C. 202(c)(5), ARPA agrees it shall not disclose such information to persons outside the Government without permission of the Consortium.

## I. Preference for American Industry

Notwithstanding any other provision of this clause, the Consortium agrees that it shall not grant to any person the exclusive right to use or sell any subject invention in the United States or Canada unless such person agrees that any product embodying the subject invention or produced through the use of the subject invention shall be manufactured substantially in the United States or Canada. However, in individual cases, the requirements for such an agreement may be waived by ARPA upon a showing by the Consortium that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that, under the circumstances, domestic manufacture is not commercially feasible.

## J. March-in Rights

The Consortium agrees that, with respect to any subject invention in which it has retained title, ARPA has the right to require the Consortium, an assignee, or exclusive licensee of a subject invention to grant a non-exclusive license to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the Consortium, assignee, or exclusive licensee refuses such a request, ARPA has the right to grant such a license itself if ARPA determines that:

1. Such action is necessary because the Consortium or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention, a reasonable time being no less than five (5) years from the end of the term of the Agreement;
2. Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the Consortium, assignee, or their licensees;
3. Such action is necessary to meet requirements for public use and such requirements are not reasonably satisfied by the Consortium, assignee, or licensees; or
4. Such action is necessary because the agreement required by paragraph (I) of this Article has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such Agreement.

## ARTICLE VIII: DATA RIGHTS

### A. Additional Definitions

1. "Government purpose license rights" (GPLR), as used in this article, means rights to use, duplicate, or disclose data, in whole or in part and in any manner, for Government purposes only, and to have or permit others to do so for Government purposes only. Government purposes include competitive procurement, but do not include the right to have or permit others to use technical data for commercial purposes.

2. "Unlimited rights", as used in this article, means rights to use, duplicate, release, or disclose, technical data or computer software in whole or in part, in any manner and for any purposes whatsoever, and to have or permit others to do so.

3. "Data", as used in this article, means recorded information, regardless of form or method of recording, which includes but is not limited to, technical data, software, trade secrets, and mask works. The term does not include financial, administrative, cost, pricing or management information and does not include subject inventions included under Article VII.

4. "Technical Data", as used in this article, means recorded information, regardless of the form or method of the recording of a scientific or technical nature (including computer software documentation). The term does not include computer software or data incidental to agreement administration, such as financial and/or management information.

**B. Data Categories**

The Parties agree to the following categories of Data.

1. Category A is the Consortium Data developed and paid for totally by private funds and is Data to which the Consortium retains all rights.

2. Category B is the Consortium Developed and Government funded Data which cannot be disclosed without compromising the Consortium Category A Data.

3. Category C is the Consortium Developed Data, excluding Category A and B Data.

**C. Allocation of Principal Rights**

1. This Agreement shall be performed with mixed Government and Consortium funding. The Parties agree that in consideration for ARPA's funding, and in lieu of any Government rights to Categories A or B (except as contained in subparagraph C.4 below) Data, the Consortium intends to reduce to practical application materials and processes developed under this Agreement.

2. No deliveries in Category A and B are contemplated or required under this Agreement; therefore, no rights in Category A and B Data shall be granted to ARPA. There are no Category A or B Data identified at the time of execution of the Agreement.

3. In the event the Consortium does not reduce to practical application items components and processes developed under this Agreement within five (5) years after conclusion of this Agreement, ARPA shall have Government Purposes License Rights to Category B Data for a period of five (5) years after conclusion of the Agreement, after which five (5)-year period, the Government shall have Unlimited Rights to Category B Data.

4. ARPA shall have Government Purpose License Rights to Category C Data for a period of three (3) years after conclusion of the Agreement, after which three (3)-year period, the Government shall have Unlimited Rights to Category C Data.

5. The Consortium will prepare a list of Category A and B data for incorporation into this Agreement for the first year within a reasonable period following the award of this Agreement and subsequent years, as part of the annual planning process described in Article III. Following mutual agreement of the Parties on the list of Category A and B data, the ARPA Agreement Administrator will incorporate this list by written modification.

**D. Marking of Data**

Any Data delivered under this Agreement shall be marked with the following legend:

Use, duplication, or disclosure is subject to the restrictions as stated in Agreement MDA972-94-2-0005 between the Advanced Research Projects Agency and the Consortium.

**E. Lower Tier Agreements**

The Consortium shall include this Article, suitably modified, to identify the Parties, in all subcontracts or lower tier agreements, regardless of tier, for experimental, developmental, or research work.

## ARTICLE IX: FOREIGN ACCESS TO TECHNOLOGY

This Article shall remain in effect during the term of the Agreement and for five (5) years thereafter.

### A. Definition

"Foreign Firm or Institution" means a firm or institution organized or existing under the laws of a country other than the United States, its territories, or possessions. The term includes, for purposes of this Agreement, any agency or instrumentality of a foreign government; and firms, institutions or business organizations which are owned or substantially controlled by foreign governments, firms, institutions, or individuals.

"Know-How" means all information including, but not limited to discoveries, formulas, materials, inventions, processes, ideas, approaches, concepts, techniques, methods, software, programs, documentation, procedures, firmware, hardware, technical data, specifications, devices, apparatus and machines.

"Technology" means discoveries, innovations, Know-How and inventions, whether patentable or not, including computer software, recognized under U.S. law as intellectual creations to which rights of ownership accrue, including, but not limited to, patents, trade secrets, maskworks, and copyrights developed under this Agreement.

### B. General

The Parties agree that research findings and technology developments in electric-hybrid vehicle technology may constitute a significant enhancement to the national defense, and to the economic vitality of the United States. Accordingly, access to important technology developments under this Agreement by Foreign Firms or Institutions must be carefully controlled. The controls contemplated in this Article are in addition to, and are not intended to change or supersede, the provisions of the International Traffic in Arms Regulation (22 CFR pt. 121 et seq.), the DoD Industrial Security Regulation (DoD 5220.22-R) and the Department of Commerce Export Regulation (15 CFR pt. 770 et seq.)

### C. Restrictions on Sale or Transfer of Technology to Foreign Firms or Institutions

1. In order to promote the national security interests of the United States and to effectuate the policies that underlie the regulations cited above, the procedures stated in subparagraphs C.2, C.3, and C.4 below shall apply to any transfer of Technology. For purposes of this paragraph, a transfer includes a sale of the company, and sales or licensing of Technology. Transfers do not include:

- (a) sales of products or components, or
- (b) licenses of software or documentation related to sales of products or components, or
- (c) transfer to foreign subsidiaries of the Consortium participants for purposes related to this Agreement, or
- (d) transfer which provides access to Technology to a Foreign Firm or Institution which is an approved source of supply or source for the conduct of research under this Agreement provided that such transfer shall be limited to that necessary to allow the firm or institution to perform its approved role under this Agreement.

2. The Consortium shall provide timely notice to ARPA of any proposed transfers from the Consortium of Technology developed with ARPA funding under this Agreement to Foreign Firms or Institutions. If ARPA determines that the transfer may have adverse consequences to the national security interests of the United States, the Consortium, its vendors, and ARPA shall jointly endeavor to find alternatives to the proposed transfer which obviate or mitigate potential adverse consequences of the transfer but which provide substantially equivalent benefits to the Consortium.

3. In any event, the Consortium shall provide written notice to the ARPA Program Manager and Agreement Administrator of any proposed transfer to a foreign firm or institution at least sixty (60) calendar days prior to the proposed date of transfer. Such notice shall cite this Article and shall state specifically what is to be

transferred and the general terms of the transfer. Within thirty (30) calendar days of receipt of the Consortium's written notification, the ARPA Agreement Administrator shall advise the Consortium whether it consents to the proposed transfer. In cases where ARPA does not concur or sixty (60) calendar days after receipt and ARPA provides no decision, the Consortium may utilize the procedures under Article VI, Disputes. No transfer shall take place until a decision is rendered.

4. Except as provided in subparagraph C.1 above and in the event the transfer of Technology to Foreign Firms or Institutions is approved by ARPA, the Consortium shall (a) refund to ARPA funds paid for the development of the Technology and (b) negotiate a license with the Government to the Technology under terms that are reasonable under the circumstances.

#### **D. Lower Tier Agreements**

The Consortium shall include this Article, suitably modified, to identify the Parties, in all subcontracts or lower tier agreements, regardless of tier, for experimental, developmental, or research work.

#### **ARTICLE X: OFFICIALS NOT TO BENEFIT**

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit arising from it. However, this clause does not apply to this agreement to the extent that this agreement is made with a Corporation for the Corporation's general benefit.

#### **ARTICLE XI: CIVIL RIGHTS ACT**

This Agreement is subject to the compliance requirements of Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000-d) relating to nondiscrimination in Federally assisted programs. Each Consortium participant company has signed an Assurance of Compliance with the nondiscriminatory provisions of the Act. The Parties recognize that since the Consortium has no employees, that compliance is the responsibility of each participant.

#### **ARTICLE XII: ORDER OF PRECEDENCE**

In the event of any inconsistency between the terms of this Agreement and language set forth in the Consortium's Articles of Collaboration, the inconsistency shall be resolved by giving precedence in the following order: (1) The Agreement, (2) Attachments to the Agreement, (3) Consortium Articles of Collaboration.

#### **ARTICLE XIII: EXECUTION**

This Agreement constitutes the entire agreement of the Parties and supersedes all prior and contemporaneous agreements, understandings, negotiations and discussions among the Parties, whether oral or written, with respect to the subject matter hereof. This Agreement may be revised only by written consent of the CMC and ARPA Agreement Administrator. This Agreement, or modifications thereto, may be executed in counterparts each of which shall be deemed as original, but all of which taken together shall constitute one and the same instrument.

**CERTIFICATIONS FOR AGREEMENT NO. MDA972-94-2-0005**

1. The undersigned certifies, to the best of his or her knowledge and belief, that this organization

(a) Pursuant to Executive Order 12549 and implementing rule, is presently not debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal department or agency.

(b) Pursuant to Public Law 100-690 and implementing final rule, effective 24 July 1990, will provide a drug-free workplace.  
The place of performance is:

129 Portland St. Boston, Suffolk, MA  
[Street Address]

[City, County, State]

02114  
[Zip code]

(c) Is in compliance with the provisions of DoD Directive 5500.11, "Nondiscrimination in Federally Assisted Programs", which implements Title VI of the Civil Rights Act of 1964.

2. The following certification applies only to actions exceeding \$100,000.00:

Section 1352, Title 31, U.S.C. (Public Law 101-121, Section 319) entitled, "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions."

(1) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an Officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal Grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, cooperative agreement, or other transaction.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, cooperative agreement, or other transaction, the undersigned shall complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, cooperative agreements and other transactions) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.

Frederick R. Levy, Program Administrator Northeast Alternative Vehicle Consortium, Inc.  
[Typed Name and Title of Official responsible for this transaction] [Name of Organization/Institution]

Frederick R. Levy  
[Signature of Official responsible for this transaction]

October 20, 1993  
[Date]

## STATEMENT OF WORK

The consortium will administer the following tasks to demonstrate and advance electric and hybrid vehicle technology.

### **Task 1- Military Base Demonstration Program**

The Consortium shall test and demonstrate electric and hybrid electric vehicles and infrastructure at the United States Air Force Facility at Hanscom Field in Bedford, Massachusetts. Refueling infrastructure including both electric recharge and compressed natural gas (CNG) delivery stations will be installed at the base. Electric and hybrid vehicle technologies that will be tested and demonstrated include: pure electric vehicle (EV) conversion pickup trucks, lightweight buses, and pure EV utility vans. These vehicles will be used for a variety of applications on the base.

#### **Subtask 1.1 • Pickup Trucks**

##### *Six (6) Alternative Current (AC) Induction Motor Pickup Trucks*

Six (6) AC induction motor pickup trucks will be supplied by the manufacturers. They will be tested and data will be collected to demonstrate the utility of pickup trucks at this latitude and climate

##### *Three (3) DC Motor Conversion Pickup Trucks*

Three S-10 pickup trucks supplied by the military will be converted to DC motors. These conversions will demonstrate the utility of relatively inexpensive conversion kits currently available on the market.

#### **Subtask 1.2 • Two (2) buses**

##### *Lightweight 23-Passenger Buses / quantity two (2)*

Two (2) 23 ft-passenger shuttle buses with hybrid electric drives and lightweight composite bodies, designed and built as a Part 3 task, will be tested and demonstrated at the military base. These buses will be powered by advanced dual alternating current (AC) motors and will incorporate CNG engine for the purposes of thermal management and range extension.

#### **Subtask 1.3 • Other Vehicles**

##### *Pure Electric Light-Weight Utility Vehicles / quantity two (2)*

The Consortium will provide two light-weight utility vehicles for use on the base.

#### **Subtask 1.4 • Refueling Infrastructure**

##### *Electric Recharge Stations*

Commercially available inductive and conductive recharge stations will be installed at the base to refuel the EVs.

*Compressed Natural Gas*

The Consortium will install a CNG refueling station to support the operation of hybrid electric vehicles on the base.

**Task 2 - Civilian Pilot Programs**

The Consortium shall administer the following civilian pilot projects to test and demonstrate near-term electric and hybrid vehicle technology. These technically diverse pilot projects will be geographically dispersed throughout the Northeast. A number of the projects are specific to this program. Others represent on-going efforts from which data will be collected for the ARPA program. In all cases the performance of the participating vehicles will be monitored in accordance with ARPA requirements to provide a uniform database to aid in assessing the relative performance of participating vehicles.

**Subtask 2.1 - Vermont Electric Vehicle Project**

A fleet of approximately 12 vehicles will be tested in diverse settings with a variety of applications which may include: fleet delivery vehicles, commuter cars, and utility vehicles for both recreational and commercial uses. This project will provide valuable information in terms of the effect of extreme cold weather and mountainous terrain on EV operation.

**Subtask 2.2 - Connecticut Electric Vehicle Demonstration Project**

The Consortium will establish a pilot program to include commuter vehicles and a van. The program is designed to demonstrate the efficacy of electric vehicles for commuter applications. The Consortium will be charged with determining the most appropriate and advantageous use of these vehicles within the context of their larger programs.

**Subtask 2.3 - New York City Electric Ferry Bus Demonstration Project**

The Consortium shall operate four (4) 22-passenger electric shuttle buses between the ferry terminals at the Port of New York and New Jersey and commuter parking facilities in New Jersey. The shuttles will also provide service to several locations in Mid-Town Manhattan. The bus design will incorporate all electric HVAC, twin battery sets, battery chargers and battery warming systems.

**Subtask 2.4 - New Hampshire Electric Passenger Bus Development**

The Consortium proposes to develop a hybrid electric bus incorporating solar panels and a flexible-fuel turbine generator set. The vehicle will utilize regenerative breaking technology and will be handicap accessible.

**Subtask 2.5 - Massachusetts Electric Vehicle Data Collection Project**

This on-going project will demonstrate the utility of pure electric cars for commuter applications. Data collected from this fleet will be integrated into the ARPA database and this program will be responsible for all data collection under this Agreement.

**Subtask 3.4 - Purpose Built Hybrid Electric Lightweight Composite Bus**

The Consortium shall collaborate in the design and manufacture of two hybrid electric buses. The 23 passenger buses will be powered by advanced dual AC motors and will incorporate a CNG engine for the purposes of thermal management and range extension. These buses will incorporate advanced thermal management and climate control systems for comfortable four season operation on the base. The vehicle's lightweight monocoque body will be designed to accommodate natural gas storage. The ductwork for the air conditioning and auxiliary heating systems will be molded into the composite body in a fashion designed to serve the dual purpose of providing passenger comfort and heat for the batteries, bearings, lubricants and certain drive train parts. The proposed project involves six specific tasks: (1) design and production of body mold and two composite bodies; (2) design and development of the advanced AC electric drive system; (3) integration of the electric drive system and the CNG-powered internal combustion engine; (4) the fabrication of two complete buses; (5) field testing; and (6) demonstration and performance at the military base.

**Subtask 3.5 - Lightweight Composite Body Study**

The Consortium will evaluate various composite materials to determine their applicability for electric vehicle applications. Principal issues to be investigated include strength and rigidity requirements, cost, and mass production opportunities.

**TASK 4 - MANAGEMENT, TRAINING AND EDUCATION**

The consortium shall administer the following education and testing projects: Military and Civilian Training Manuals and Video, Tour de Sol - 1994 contribution, S/EV 1993 contribution, Boston Edison Electric Vehicle Mobile Educational Center and Museum contribution, Northern New England Outreach and Education Project, New York City Emissions Lab Testing for Hybrid Vehicles, Connecticut Outreach and Education Project, and Computer Bulletin Board Service on INTERNET for this project.

**Subtask 4.1 - Operation and Maintenance Training**

The Consortium will oversee the delivery of high quality hands-on training and manuals to base personnel responsible for operating and maintaining all vehicles delivered to the Hanscom Field through the proposed program. In most cases the technical training and materials will be produced and supplied by those entities actually involved in converting and/or building the vehicles for delivery under Task 1.

**Subtask 4.2 - Training and Educational Programs**

The Consortium will support the following educational projects: the 1994 Tour de Sol Solar and Electric Car Race, S/EV 1993, the Mobile Electric Vehicle Educational Center, a public awareness program on electric vehicles and their potential applications and impacts in Northern New England, and training in electric vehicle conversions to former defense industry workers.

**Subtask 4.3 - Technical Support Studies and Activities**

The Consortium will conduct emission tests on hybrid electric vehicles.

## REPORT REQUIREMENTS

### A. QUARTERLY REPORT

On or before ninety (90) calendar days after effective date of the Agreement and quarterly thereafter throughout the term of the Agreement, the Consortium Management Committee (CMC) shall submit or otherwise provide a quarterly report. Two (2) copies shall be submitted or otherwise provided to the ARPA Agreements Administrator and one (1) copy shall be submitted or otherwise provided to ARPA/Advanced Systems Technology Office (ASTO), Attn: Assistant Director for Program Management. The report will have two major sections.

1. Technical Status Report. The technical status report will detail technical progress to date and report on all problems, technical issues or major developments during the reporting period. The technical status report will include a report on the status of consortium collaborative activities during the reporting period.
2. Business Status Report. The business status report shall provide summarized details of the resource status of this Agreement, including the status of the contributions by the Consortium participants. This report will include a quarterly accounting of current expenditures as outlined in the Annual Program Plan. Any major deviations shall be explained along with discussions of the adjustment actions proposed.

### B. ANNUAL PROGRAM PLAN DOCUMENT

The CMC shall submit or otherwise provide to the ARPA Program Manager one (1) copy of a report which describes the Annual Program Plan as described in Article III, Section D. This document shall be submitted not later than thirty (30) calendar days following the Annual Site Review as described in Article III, Section D.

### C. SPECIAL TECHNICAL REPORTS

As agreed to by the Consortium and the ARPA Program Manager, the CMC shall submit or otherwise provide to the ARPA Program Manager one (1) copy of special reports on significant events such as significant target accomplishments by Consortium Members, significant tests, experiments, or symposia.

### D. PAYABLE MILESTONES REPORTS

The CMC shall submit or otherwise provide to ARPA Program Manager, documentation describing the extent of accomplishment of Payable Milestones. This information shall be as required by Article V, paragraph B and shall be sufficient for the ARPA Program Manager to reasonably verify the accomplishment of the milestone of the event in accordance with the Statement of Work.

**E. FINAL REPORT**

1. The CMC shall submit or otherwise provide a Final Report making full disclosure of all major developments by the Consortium within sixty (60) calendar days of completion or termination of this Agreement. With the approval of the ARPA Program Manager, reprints of published articles may be attached to the Final Report. Two (2) copies shall be submitted or otherwise provided to the ARPA Program Manager and one (1) copy shall be submitted or otherwise provided to ARPA/Advanced Systems Technology Office (ASTO), Attn: Assistant Director for Program Management. One (1) copy shall be submitted to the Defense Technical Information Center (DTIC) addressed to Bldg. 5/Cameron Station, Alexandria, VA 22314.

2. The Final Report shall be marked with a distribution statement to denote the extent of its availability for distribution, release, and disclosure without additional approvals or authorizations. The Final Report shall be marked on the front page in a conspicuous place with the following marking:

**"DISTRIBUTION STATEMENT:** Distribution authorized to U.S. Government agencies only to protect information not owned by the U.S. Government and protected by a contractor's "limited rights" statement, or received with the understanding that it not be routinely transmitted outside the U.S. Government. Other requests for this document shall be referred to ARPA/S&IO (Attn: Technical Information Officer)."

SCHEDULE OF PAYMENTS AND PAYABLE MILESTONES

A. SCHEDULE OF PAYMENTS

<u>QUARTER</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>	<u>TOTAL</u>
FIRST	\$1,195,250	\$4,296,250	\$5,491,500
SECOND	\$1,419,000	\$1,488,000	\$2,907,000
THIRD	\$897,750	\$1,136,750	\$2,034,500
FOURTH	\$151,500	\$120,500	\$ 272,000
FIFTH	\$151,500	\$120,500	\$ 272,000
SIXTH	\$151,500	\$120,500	\$ 272,000
SEVENTH	\$71,500	\$40,500	\$ 112,000
EIGHTH	\$62,000	\$29,000	\$ 91,000
TOTALS	\$4,100,000	\$7,352,000	\$11,452,000

B. DETAILED SCHEDULE OF PAYABLE MILESTONES

<u>TASK</u>	<u>MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1	3	Two prototype truck, install two recharge stations, \$114,500 set up instrumentation for MA, ME	\$64,500	
2		Purchases for CT & VT demos; data collection, initial design NH hybrid bus	\$551,000	\$3,202,500
3		Initial design & development	\$268,750	\$281,250.
4		Develop training manuals, public demonstration, education centers, and outreach, internet	\$198,000	\$733,000
5		Project Management and Administration First Quarter Payment.....	\$63,000 \$1,195,250	\$15,000 \$4,296,250
<u>TASK</u>	<u>MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1	6	Deliver remaining pickup trucks, install remaining station	\$284,500	\$234,500
2		Purchase for CT & VT vehicles, design NYC ferry bus & metro fleet vehicles	\$619,750	\$621,250
3		Final prototype of purpose-built vehicle, design prototype for CT bus, lightweight composite study	\$403,750	\$416,250
4		Funding for education project with Tour de Sol, northern NE outreach	\$71,000	\$201,000
5		Project Management and Administration Second Quarter Payment.....	\$40,000 \$1,419,000	\$15,000 \$1,488,000

AGREEMENT NUMBER: MDA972-94-2-0005  
 ATTACHMENT 3

<u>TASK MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1 9	Delivery two trucks, one van Demonstrate vehicles in NYC Final prototype of purpose-built vehicle, prototype composite EV & hybrid bus, light-weight composites report	\$119,500 \$432,250 \$287,500	\$119,500 \$426,250 \$287,500
4	NYC emissions lab, bulletin board on internet	\$18,500	\$288,500
5	Project Management and Administration	\$40,000	\$15,000
	Third Quarter Payment.....	\$897,750	\$1,136,750
<u>TASK MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1 12	Delivery prototype purpose-built vehicle Continuing data collection Research on composite material Bulletin board services Project Management and Administration	\$2,000 \$6,000 \$100,000 \$3,500 \$40,000	\$2,000 \$0 \$100,000 \$3,500 \$15,000
5	Fourth Quarter Payment.....	\$151,500	\$120,500
<u>TASK MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1 15	On-going data collection On-going data collection Purpose-built electric vehicles, materials research Bulletin board services Project Management and Administration	\$2,000 \$6,000 \$100,000 \$3,500 \$40,000	\$2,000 \$0 \$100,000 \$3,500 \$15,000
5	Fifth Quarter Payment.....	\$151,500	\$120,500
<u>TASK MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1 18	On-going data collection On-going data collection Purpose-built electric vehicles, materials research Bulletin board services Project Management and Administration	\$2,000 \$6,000 \$100,000 \$3,500 \$40,000	\$2,000 \$0 \$100,000 \$3,500 \$15,000
	Sixth Quarter Payment.....	\$151,500	\$120,500

<u>TASK MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1 21	On-going data collection	\$2,000	\$2,000
2	On-going data collection	\$6,000	\$0
3	Materials research	\$20,000	\$20,000
4	Bulletin board services	\$3,500	\$3,500
5	Project Management and Administration	\$40,000	\$15,000
	Seventh Quarter Payment.....	\$71,500	\$40,500
<u>TASK MONTH</u>	<u>PAYABLE MILESTONES</u>	<u>ARPA PAYMENT</u>	<u>CONSORTIUM PAYMENT</u>
1 24	On-going data collection	\$1,000	\$1,000
2	On-going data collection	\$8,000	\$0
3	Purpose-built electric vehicles, materials research	\$10,000	\$10,000
4	Bulletin board services	\$3,000	\$3,000
5	Project Management and Administration	\$40,000	\$15,000
	Eighth Quarter Payment.....	\$62,000	\$29,000
	<b>TOTALS</b>	<b>\$4,100,000</b>	<b>\$7,352,000</b>

FUNDING PROFILE BY TASK AND PARTICIPANT

**A. FUNDING PROFILE BY TASK**

	<u>Consortium Contribution</u>	<u>ARPA Funding</u>
Task 1. Military Base	\$ 427,500	\$ 527,500
Task 2. Civilian Pilot Projects	\$4,250,000	\$1,635,000
Task 3. Technology Projects	\$1,315,000	\$1,290,000
Task 4. Education, Training and Safety	\$1,239,500	\$ 304,500
Task 5. Management	\$ 120,000	\$ 343,000
<b>TOTALS</b>	<b>\$7,352,000</b>	<b>\$4,100,000</b>

**B. FUNDING PROFILE BY PARTICIPANT**

<u>Participant</u>	<u>Contribution</u>	<u>Funds from ARPA</u>
Boston Edison	\$1,110,000	\$1,010,000
Solectria	\$117,500	\$117,500
Solar Car of CT	\$412,500	\$412,500
Boston Gas	\$75,000	\$75,000
VT Corporations/VT Gov't	\$350,000	\$335,000
United Illumination, Connecticut	\$175,000	\$175,000
Light & Power, Northeast Utilities		
ARCORP	\$475,000	\$475,000
Cart-Aways	\$45,000	\$45,000
Bangor Hydro	\$25,000	\$25,000
UTC	\$125,000	\$100,000
NESEA	\$389,000	\$75,000
Massport	\$150,000	\$0
New York City	\$285,000	\$15,000
CT Municipal Electric	\$15,000	\$15,000
Massachusetts (Commonwealth)	\$2,670,000	\$70,000
University Massachusetts	\$150,000	\$150,000
Grumman	\$590,000	\$590,000
NAVC/NEGC/NESCAUM	\$168,000	\$390,000
New Hampshire	\$25,000	\$25,000
<b>TOTALS</b>	<b>\$7,352,000</b>	<b>\$4,100,000</b>

**LIST OF GOVERNMENT AND CONSORTIUM REPRESENTATIVES**

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